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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/559,065	04/28/2000	German Goldszmidt	YO999-479	3172

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EXAMINER

LIN, WEN TAI

ART UNIT	PAPER NUMBER
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2154

DATE MAILED: 05/07/2004

10

Please find below and/or attached an Office communication concerning this application or proceeding.

129

Office Action Summary	Application No. 09/559,065	Applicant(s) GOLDSZMIDT ET AL.	
	Examiner Wen-Tai Lin	Art Unit 2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 31-39 and 48 is/are allowed.
- 6) ☒ Claim(s) 1-10, 12, 13, 17, 19-23, 28-30 and 40-47 is/are rejected.
- 7) ☒ Claim(s) 11, 14-16, 18 and 24-27 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. Claims 1-48 are presented for examination.
2. The indicated allowability of claims 1-10, 12-13, 17, 19-23, 28-30 and 40-47 are withdrawn in view of the newly discovered reference(s) to **Elliot et al. (U.S. pat. No. 6335927)**. Rejection based on the newly cited reference follows.
3. The text of those sections of Title 35, USC code not included in this action can be found in the previous Office Action.
4. Claims 31-39 and 48 are objected to because of the following informalities/issues:
 - (i) As to claims 31 and 48, the term "operation state M(i)" are not clearly defined. It is noted that Applicant's specification at page 11, paragraph #5 uses (M,N,R) to denote an operation state, wherein M is a performance metric for customer.
 - (ii) Claims 31-39 appear to resemble execution steps as described in Fig.6, wherein step 604 requires to check all M(i) (for all customer "i") to fall within the green belt. However, claims 31 and 48 appear to require only an operation state to fall within the green belt defined by a metric and a number of resources. Clarification/Correction is required in response to this office action.

Claim Rejections - 35 USC § 103

5. Claims 1-10, 12-13, 17, 19-23, 28-30 and 40-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choudhury et al. (hereafter "Choudhury") [U.S. Pat. No. 5719854] in view of Elliott et al. (hereafter "Elliott") [U.S. Pat. No. 6335927].

6. As to claims 1, 40 and 47, Choudhury teaches the invention substantially as claimed including: a method for managing and controlling allocation and de-allocation of resources based on a guaranteed services based on a best effort for a plurality of customers [Abstract; Figs. 3-5 and 10], said method comprising:

dynamically allocating resources for a plurality of customers, such that said resources received by a customer are dynamically controlled (i.e., dynamically allocated or de-allocated) [e.g., 801-804, Fig.8; 1007, Fig.10; col.5, lines 53-65; i.e., in dealing with the fluctuations in customer requests and/or resource failures, it is clear that Choudhury's system must dynamically allocate and/or de-allocate the resources because these customer events are not predictable]; and said customer receives a guaranteed minimum amount of resources in accordance with the customer's subscribed service grade [col.6, lines 22-39; col.14, lines 9-16; i.e., under nominal operating condition there is a minimum amount of resource associated with each guaranteed minimum bound (GM) on the number of customer's request traffic].

Choudhury does not teach that the guaranteed minimum resource amount and at least one parameter defining conditions of dynamically allocating and de-allocating said server resources are specified in a service level agreement (SLA).

However, Elliott teaches that parameters defined in a quality of service, when taken together, constitute a service level agreement with each customer [col.24, lines 38-43]. Elliott further teaches that the process of allocation and de-allocation is based on supply and demand, which is the core of a resource management model based on the concept of dynamic resource allocation [col. 40, line 64 - col. 41, line 19].

Accordingly, it is obvious to one of ordinary skill in the art that Choudhury's guaranteed minimum resource amount (which is derived from the guaranteed minimum bound) and the pair of upper and lower limits, which delimit a customer's request traffic and serve as parameters for allocating and de-allocating resources, could have been entered in to a service level agreement, because Choudhury's system/method is solely targeted at maintaining a plurality of customers' QoS.

7. As to claim 2, Choudhury teaches that the method further comprising utilizing a performance metric to increase or decrease an inbound traffic to a customer [col.11, lines 1-6 and 40-42; e.g., the request blocking probability or request arrival rate are performance metrics of, interalia, the inbound traffic to a customer].

8. As to claim 3, Choudhury further teaches supporting minimum and maximum server resource-based service level agreements for a plurality of customers [Abstract:

lines 6-16; note that, based on the performance function, the upper and lower performance requirements can be translated into maximum and minimum resources (i.e., via function inversion), respectively].

9. As to claim 4, Choudhury teaches that the method further comprising utilizing performance metrics to control the allocation of additional server resources to a plurality of customers using bounds on given service level metrics [304-311, Fig.3; e.g., additional resources is required when new customer request is detected and then all the existing service bounds would have to be checked against the new allocations].

10. As to claims 5-6, Choudhury teaches that the method further comprising:
supporting a plurality of service level metrics and selectively utilizing a plurality of different metrics for a plurality of different customers [col.11, lines 1-25; col.12, lines 20-34, wherein blocking probability, cost, request arrival rate, etc. are different service level metrics].

11. As to claim 7, Choudhury further teaches utilizing a service level metric, an amount of allocable resources, and an inbound traffic rate, for defining a state of a current service level (M,N,R) for each customer [col.11, lines 1-39, wherein the service rate (or blocking probability), the resource requirements (vector b) and the arrival rate correspond to M, N, and R respectively].

12. As to claim 8, Choudhury further teaches utilizing a target service level metric M_t to maintain an actual service level M substantially at or near a target service level so as to be guaranteed to fall between low and high bounds ($M_{lowbound}$ and $M_{highbound}$) specified in a service level agreement (SLA) [1001-1006, Fig.10; note that the $M_{lowbound}$ and $M_{highbound}$ correspond to Choudhury's UL and GM bounds, respectively, which are associated with the target service level metric M_t].

13. As to claims 9-10 and 12, Choudhury further teaches:

- computing a target amount of resources N_t and an inbound traffic rate R_t from a given target service level metric M_t and based on the current service level (M, N, R) [col.7, lines 29-49 and col.8, lines 19-31; note that this is an function inversion process];
- performing at least one of a numerical analysis, a mathematical formulaic operation, an add-one/subtract-one, and a quick simulation for deriving a target amount of resources N_t and an inbound traffic rate R_t) [Choudhury: col.6, lines 40-52; col.7, lines 35-38]; and
- deciding whether or not to add a server resource or to reduce an inbound traffic rate to meet service level agreements for a plurality of customers [308-311, Fig.3].

14. As to claim 28, Choudhury teaches maximizing revenue potential when allocating resources beyond a minimum amount for a customer [Fig.3; col.14, lines 8-

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16; col.11, lines 32-39 and 50-53; i.e., through the steps of Fig 3, it is obvious that the maximal revenue is achieved by accepting as many new customers as possible, while maintaining the service level of each customer close to the guaranteed minimum bound].

15. As to claims 29-30, Choudhury further teaches defining a unit of said resources [col.13, lines 18-64] wherein the variable b_{ij} (number of units in resource i required by each request of customer j) can obviously be a constant or varied according to the performance evaluation model [col.11, lines 32-39; col.13, lines 21-64].

16. As to claims 13, 17, 19-23 and 41-46, since the features of these claims can also be found in claims 1, 3 and 9, they are rejected for the same reasons set forth in the rejection of claims 1, 3 and 9 above.

17. Claims 11, 14-16, 18 and 24-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. Claims 31-39 and 48 would be allowable if rewritten or amended to overcome the objection set forth in this Office Action.

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19. Applicant's arguments with respect to claims 1-10, 12-13, 17, 19-23, 28-30 and 40-47 on 10/10/2003 and 1/27/2004 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Tai Lin whose telephone number is (703)305-4875. The examiner can normally be reached on Monday-Friday(8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (703)305-8498. The fax phone numbers for the organization where this application or proceeding is assigned are as follows:

(703)746-7239 for official communications; and

(703)746-5516 for status inquiries draft communication.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

Wen-Tai Lin

March 19, 2004



3/19/04



PETER WONG, DIRECTOR
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